APRIL 1954
VOL. III No. 3

TAXON

Official News Bulletin of the International Association for Plant Taxonomy, Edited and Published for I.A.P.T. by the International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht, Netherlands

THE PATTERN OF MYCOLOGICAL TAXONOMY

by

G. C. Ainsworth (Exeter)

Approximately 8,000 genera and at least 100,000 species of fungi have so far been proposed. Half of the genera and rather more than half of the species have already been relegated to synonymy but new genera and new species continue to be proposed at a high rate. In an attempt to determine the general pattern of mycological taxonomy during recent years a count was made of the new genera and species compiled in Petrak's lists in *Just's Botanischer Jahresbericht*, 1930-1944 (recently re-issued by the Commonwealth Mycological Institute, Kew), and in the *Index of Fungi* (1940-x, Commonwealth Mycological Institute) for every fifth year from 1920 to 1950. (It was originally intended to obtain such data for every year but the task is laborious and the samples taken are believed to be sufficient to indicate the general pattern.) In addition, the numbers of new combinations for the same years were counted. These last figures are considered to give an indication at least of the amount of revision and monographing being undertaken, an activity that would probably be more accurately reflected by the numbers of new synonyms but these have never been systematically compiled.

The general results are summarized in Fig. 1. For the whole period, in round figures, the average number of new genera per year was 50, of new species and new combinations 700 and 300, respectively. The numbers fluctuate from year to year (a major fluctuation can sometimes be attributed to a particular publication e.g. Velenovsky's *Ceské Houby* was largely responsible for the high number of species in 1920, Corner's monograph on *Clavaria* for the record number of new combinations in 1950) but inspection of Fig. 1 shows that (a) during the first fifteen years the annual number of new genera was somewhat in excess of that for subsequent years; (b) with the exception of 1920, the number of new species has tended to fluctuate about a mean of approximately 625; and (c) the number of new combinations has shown a tendency to rise since 1930.

A more striking result was obtained by plotting the annual numbers of new species proposed per new genus and for the new combinations expressed as a percentage of the new species, ratios which were also obtained for 1952 by sampling appropriate parts of the *Index of Fungi* (see Fig. 2). The curve for the "spp. nov./gen. nov." is seen to approximate to a straight line. For the whole period there have been on the average 14 new species for every new genus while from 1930 this ratio has remained approximately constant at 17-19 : 1. From 1920 to 1940 the new combinations remained constant at approximately 30 per cent of the number of new species but since then they have shown a marked relative increase and in 1950 actually equalled the new species.

Fig. 1. Numbers of new genera, new species and new combinations of fungi proposed each year.

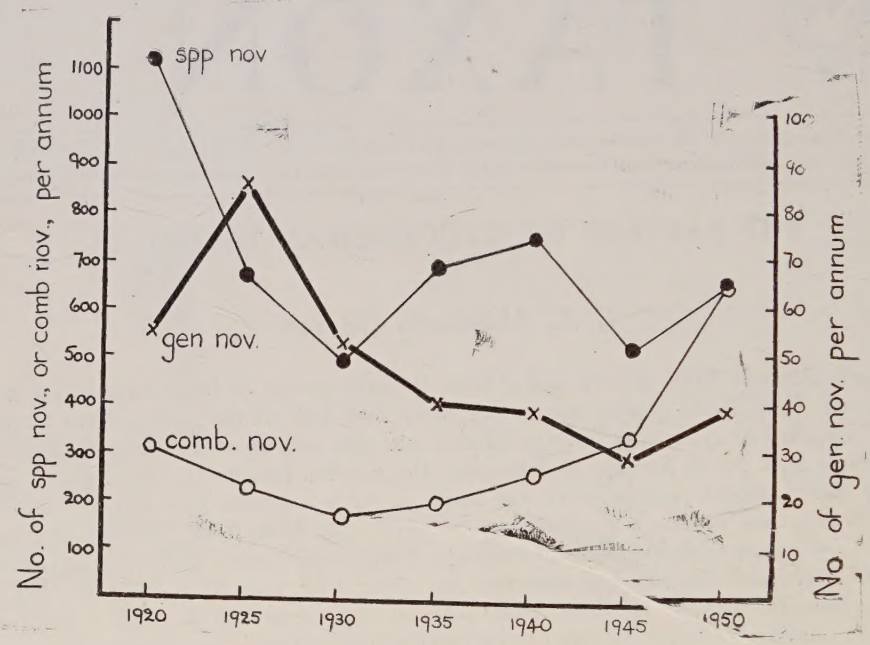
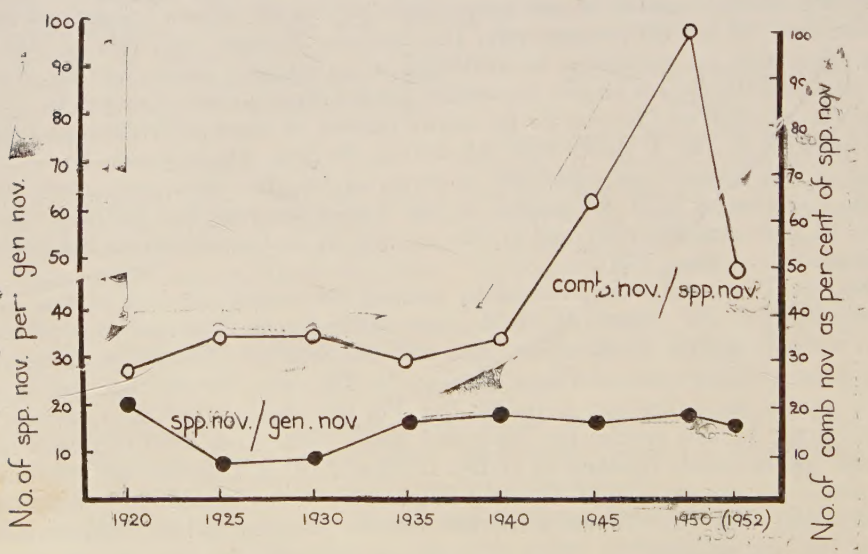


Fig. 2. Number of new species of fungi per new genus and number of new combinations as a percentage of the number of new species.



The interpretation of Fig. 2 is not altogether clear. Why during the past twenty years the number of new species per new genus has remained constant is obscure. From the estimates of the numbers of fungi in Ainsworth & Bisby's *Dictionary of the fungi*, ed. 4, 1954, it appears that for all fungi the number of "good" species per "good" genus is approximately 10; different groups of fungi showing variation from 1.5 per genus for the Plasmodiophorales to 36 per genus for the Uredinales, an order in which host specialization is an important aspect of the species-concept. For lichens the figure is 40. One thing that does seem probable is that half of the new species proposed during recent years are destined for synonymy.

After remaining constant during the inter-war period the very welcome upward trend in the proportion of new combinations indicates that increasing attention is being paid to revision. Possibly the climate of opinion induced by a second world war has penetrated to herbaria and led more mycologists to think "globally". The more general and comprehensive use of air mail and air travel have also possibly played some part by facilitating exchange of material and information.

The next step was to study the place of publication of the new taxa in 1920 and 1950 by examination of a random sample of 250 from each of these two years. In the 1920 sample 31 journals and other publications were involved; in the 1950 sample 53, and only 5 publications occurred in both years i.e. the 500 new taxa were published in 79 publications. These five were the *Annales Mycologici* (and its successor *Sydowia*), the journals of the American, British, and French mycological societies, and the *Nuovo Giornale Botanico Italiano*.

When numbers of new taxa published in the four mycological journals for the two years were ascertained, from Petrak's list for 1920 and from the journals themselves for 1950, and then expressed as percentages of the totals of new taxa for the two years, the results were:

	1920	1950
Annales Mycologici (Sydowia)	16.4 %	20.0 %
Mycologia	4.1 %	6.6 %
Transactions of the British Mycological Society	0.8 %	4.6 %
Bulletin de la Société Mycologique de France	2.4 %	1.2 %
Total	23.7 %	32.4 %

This suggests that the proportion of the new taxa proposed in these three leading mycological journals has not changed greatly over the thirty years. The number of journals included in the two samples from the two years does, however, suggest that the scatter of mycological taxonomic publication has increased during this period.

Finally the percentage of the taxa in the two samples occurring in journals published in Europe, Asia, Africa, North America, South America, and Australasia was determined. European journals accounted for the greater proportion (1920, 72%; 1950, 66%) with North American publications second (1920, 20%; 1950, 15%). Although the values for other areas have little significance because of the smallness of the samples, it is interesting to note that the percentage of the new taxa in Asian journals rose from 1.2% in 1920 to 12% in 1950. It should perhaps be emphasized that these figures do not accurately reflect the geographical intensity of mycological taxonomy for new taxa based on fungi from one country are so often published in a journal of another.

While no mathematical significance is claimed for most of the results presented in this article and although the analysis of additional statistics would undoubtedly modify some of the conclusions, it is suggested that in general the results obtained do reveal the prevailing pattern of mycological taxonomy. Some of the implications of this pattern will, it is hoped, be examined in a subsequent article.

BEMERKUNGEN ZUR EMENDIERUNGSFRAGE

von

O. Schwarz (Jena)

Es ist eine weitverbreitete Auffassung, dass bei der Zerlegung eines Taxons in mehrere unter sich gleichwertige Taxa durch verschiedene Autoren in verschiedener Weise keine verbindliche Entscheidung möglich sei, welche der verschiedenen Emendierungen gültig ist. So ist z. B. MANSFELD, Repert. sp. nov. 47 : 265 (1939), der Meinung, dass die "International Rules" keine Vorschriften über die nachträgliche Festlegung des Typus für jene Fälle enthielten, in der eine Gattung, deren Autor keinen Typus angegeben habe, aufgeteilt wurde. Für LINNEsche Gattungen scheint die Frage dadurch gelöst, dass in der Liste der "Species lectotypicae generum Linnaei" die Typusarten festgelegt sind. Aber dieser Schutz ist doch nur ein scheinbarer, wie die Beispiele von *Statice* L. (Typus *St. armeria* L.) und *Satyrium* L. (Typus *S. viride* L.) beweisen, die durch *Armeria* W. und *Coeloglossum* Hartm. ersetzt worden sind — d.h. Festlegung der Typusart bedeutet noch keineswegs, dass die betreffende Gattung den Schutz der Liste der "Nomina generica conservanda" geniesse. So könnte jemand mit voller Berechtigung den Gattungsnamen *Erica* L. als "nomen ambiguum" verwerfen und alle *Erica*arten in *Tetralix*arten umtaufen, weil ZINN, Catal. 202 (1757) im Gegensatz zu SALISBURY, Transact. Linn. Soc. 6 : 317 bzw. 323 (1802), *Erica* L. auf *E. vulgaris* L. eingeschränkt und die übrigen Arten in die neue Gattung *Tetralix* gestellt hat, infolgedessen der Name *Erica* L. in verschiedenem Sinne gebraucht worden ist.

Noch schwieriger scheint der Fall bei *Arten* zu liegen, da hier einmal keine Liste von "Nomina conservanda" vorliegt und zweitens die Typen — im Gegensatz zu den Gattungen, innerhalb welcher Rangstufe stets eine Art den Typus darstellt — ganz verschiedenen Charakter haben, sei es als authentische Herbarbelege, sei es als Beschreibung, Abbildung usw. Wenn also beispielsweise MILLER, Gard. Dict. (1768), die Art *Cyclamen europaeum* L., Sp. pl. 145 (1753) — von der LINNE ausdrücklich sagt: "Cyclamina omnia 1-13. — Bauhin, Pinax", womit er sämtliche damals bekannten *Cyclamen*arten einschliesst — aufteilt, als Typus der LINNEschen Art die später *C. neapolitanum* Ten. genannte auswählt und die übrigen Arten neu benennt, während AITON, Hort. Kew. 196 (1789), den Linnéschen Namen auf die von MILLER, l.c., *C. purpurascens* benannte Art der Alpen typisiert, *C. europaeum* L. em. Mill. aber neu — als *C. hederifolium* — bezeichnet, so ist es anscheinend dem Einzelnen überlassen, entweder die MILLERsche oder die AITONsche Emendierung anzunehmen, d.h., es bestünde mit gleichem Recht ein *C. europaeum* L. em. Mill. neben einem *C. europaeum* L. em. Ait. — ein unmöglicher Zustand, der Absichten und Sinn der Nomenklaturregeln gänzlich zuwiderläuft.

Die entgegengesetzte Form der Emendierung, die Zusammenlegung gleichwertiger Taxa in ein einziges Taxon, ist durch § 56 der Regeln ausdrücklich dahin festgelegt, dass die Namenswahl desjenigen Autors, der als *erster* die Zusammenlegung vornahm, verbindlich ist, d.h., man lässt hier das Prioritätsprinzip, fixiert in § 16 der Regeln, uneingeschränkt gelten. Als JACQUIN, Enum. stirp. vindob. 240 (1772) die beiden Arten *S. aizoides* L., Sp. pl. 402 (1753), und *S. autumnalis* L., l.c., unter dem letzteren Namen — nach unserer jetzigen Schreibweise also als *S. autumnalis* L. em. Jacq. — vereinigte, hat er einen vollgültigen und legitimen Namen geschaffen, und da nach § 16 jede Art nur einen gültigen Namen haben kann, "nämlich den ältesten, der den Nomenklaturregeln entspricht", was für JACQUINs Namenswahl voll zutrifft, so folgt eigentlich bereits aus § 16, dass jede weitere Emendierung ungültige, totgeborene Namen schafft und der § 56, Satz 2, eigentlich überflüssig ist. Die

Prioritätsregel — § 16 — besagt also nichts anderes, als dass der zuerst aufgestellte Typus gegenüber allen späteren beizubehalten ist und dass da, wo mehrere gleichartige Typen für dasselbe Taxon vorliegen, die älteste Typus-Auswahl massgeblich ist, einfach, weil Typus und Name untrennbar miteinander verbunden sind.

Genau so geht aber auch aus § 16 zwingend hervor, wie bei der Wahl zwischen mehreren Emendierungen eines aufgeteilten Taxons zu verfahren ist. Die § 51 und 52 bestimmen zwar noch ausdrücklich, dass der ursprüngliche Name für den Teil des Taxons beizubehalten ist, der den Typus enthält. Da aber nach § 18 der Name mit dem Typus untrennbar verknüpft ist, bedeutet in diesem Falle der Passus des § 16 "den ältesten, der den Nomenklaturregeln entspricht", dass der ältest gültige Name *einschliesslich* seines Typus angenommen werden muss. Wenn also ein Autor, ohne gegen die Nomenklaturregeln zu verstossen, ein Taxon aufgeteilt hat, das heisst neue Taxa neben gleichzeitiger Einschränkung (aber Beibehaltung) des ursprünglichen Namens aufstellte, so hat er nicht nur für die neuen Taxa, sondern auch für das alte Taxon den Typus festgelegt, wenn der ursprüngliche Autor ihn nicht selbst bestimmt hatte.

Das oben angeführte Beispiel von *Cyclamen europaeum*, dessen Name von LINNÉ ausdrücklich auf 13 durch BAUHIN charakterisierte Taxa bezogen worden ist, kann als besonders aufschlussreich dienen. MILLER (l.c.) schränkt es als erster ein auf die weitest verbreitete, zu LINNÉs Zeit am besten bekannte mediterrane Art und beschreibt neben anderen Arten auch die Pflanze der Alpen und zwar als *C. purpurascens* neu, d.h., im Geltungsbereich der binären Nomenklatur wird die Alpenpflanze zum ersten Male als Taxon unterschieden und benannt, also typisiert, während die Mittelmeerpflanze zwar auch als Taxon zum ersten Male unterschieden, aber vollkommen korrekt mit einem für sie gültig veröffentlichten Namen benannt worden ist, also für diesen Namen typisiert wurde. Damit ist den Forderungen des § 16 und implicite der § 18 und § 52 vollgültig genüge getan. Wenn AITON (l.c.) später die Dinge auf den Kopf stellt, indem er die gleichen Taxa neu typisiert, so trennt er, in Widerspruch zu § 18 nicht nur Typus und Namen, sondern gerät auch in Konflikt mit § 16, da er die ältesten Namen, die den Nomenklaturregeln entsprechen, nicht annimt. Seine Emendierung fällt vollständig in den Bereich des § 60, Abs. 1 — d.h. sie war überflüssig, weil "für die Gruppe .... nach ihrer besonderen Umgrenzung, Stellung und Rangstufe bereits ein gültiger Name vorhanden war", nämlich *C. europaeum* L. em. Mill. einerseits für *C. hederifolium* Ait. und *C. purpurascens* Mill. für *C. europaeum* L. em. Ait. anderseits. Die AITONsche Emendierung hat also "nomina abortiva" geschaffen *) und ist zu verwerfen — eine im Prinzip aus § 16 sich ergebende einfache Sachlage.

Schwierig wird die Frage aber für die LINNEschen Gattungen, weil hier die Liste der "Species lectotypicae" angenommen worden ist, ohne dass man die Konsequenz des § 16 im Zusammenhang mit der Typenmethode auf spätere Emendierungen beachtet hat. So hat ZINN, Catal. 381 (1757), als erster die Gattung *Scabiosa* L. auf *Sc. succisa* L. typisiert und auf *Sc. columbaria* L. die Gattung *Asterocephalus* begründet; da beide in voller Uebereinstimmung mit den Regeln bestehen, sind seine Namen die ältest gültigen und können nicht verworfen werden. Nachträglich hat man aber, der ungültigen Emendierung bei COULTER, Mém. Soc. phys. Genève 1824 : 45, folgend, für *Scabiosa* L. die Art *Sc. columbaria* L. als "species lectotypica" vorge-

*) Eine andere Frage ist es natürlich, ob man *C. europaeum* L. em. Mill. heute noch verwenden soll. Meiner Meinung nach muss es als "nomen ambiguum" (§ 62) verworfen werden, da es zu lange in AITONS Emendierung verwandt worden ist. Aus gleichem Grunde ist *C. hederifolium* Ait. unverwendbar, obendrein aber weil es als unberechtigte Umtaufe von *C. europaeum* L. em. Mill. totgeboren ist. Es bleibt also bei dem Namen *C. neapolitanum* Ten.

schlagen. Wenngleich dieser Vorschlag einem rund 100jährigen Gebrauch entspricht, so schafft er die Tatsache doch nicht aus der Welt, dass dieser Gebrauch im Gegensatz zu den Regeln § 16 steht, genau wie im Falle von *Satyrium* L. und *Statice* L.; denn er lässt die Tatsache ausser acht, dass die Gattung *Scabiosa* L. bereits von Zinn, l.c., gültig auf *Sc. succisa* L. typisiert wurde. Gleiche Sachlage ist gegeben bei *Erica* L. em. Zinn (Typusart *E. vulgaris* L.) gegenüber *Erica* L. em. Sal. (Typusart *E. tetralix* L.). Es ergibt sich also zwangsläufig aus der jetzigen Fassung der Regeln, dass eine ganze Anzahl der vorgeschlagenen "species lectotypicae Linneanae" im Widerspruch zu den Regeln stehen und fallen gelassen werden, bzw. ersetzt werden müssen durch die älteste den Regeln entsprechend ausgewählte Typusart. Als Beispiele gebe ich: *Erica tetralix* zu ersetzen durch *Erica vulgaris*, *Scabiosa columbaria* zu ersetzen durch *Sc. succisa*, *Rhinanthus crista-galli* durch *Rh. elephas* *).

Die weitere Konsequenz aber ist, dass alle diese Linneschen Gattungen auf die Liste der "nomina conservanda" und zwar in ihrer durch den langjährigen Gebrauch sozusagen sanktionierten Fassung gesetzt werden müssen, also *Erica* L. em. Sal., *Rhinanthus* L. em. Necker, *Scabiosa* L. em. Coult., während auf die Liste der "nomina rejicienda" gehören: *Erica* L. em. Zinn, *Rhinanthus* L. em. All., *Scabiosa* L. em. Zinn. Ganz im Sinne dieser Folgerung aus den Regeln hat neuerdings Sealy, in Taxon 3 : 66 (1954), den Namen *Dracocephalum* L. em. Benth. (1830) gegenüber *Dracocephalum* L. em. Adans. (1763) zur Konservierung vorgeschlagen.

Um aber nicht immer wieder erneute Diskussionen und umständliche Ueberlegungen anstellen zu müssen, ist es ratsam, die Artikel 51 und 52 in folgender Fassung in einen einzigen Artikel zusammenzuziehen:

> Art. 51. Wird ein Taxon in zwei oder mehrere zerlegt, so ist sein Name für eines von ihnen beizubehalten und zwar für dasjenige, das den Typus enthält. Ist der Typus des Namens von seinem Autor nicht festgelegt worden, so ist die älteste Typus-Auswahl, die den Nomenklaturregeln entspricht, verbindlich.

A STABLE NOMENCLATURE

by

R. A. Dyer (Pretoria)

Every botanist knows that Article 4 of the Code reads as follows: "The essential points in nomenclature are: (1) to aim at fixity of names; (2) to avoid or reject the use of forms and names which may cause error or ambiguity or throw science into confusion.

Next in importance is the avoidance of all useless creation of names."

The fixity of names is the first objective because "Botany cannot make satisfactory progress without a precise system of nomenclature".

We go further by saying in Article 17 "that no one may change a name (or combination of names) without serious motives, based either on more profound knowledge of facts or on the necessity of giving up a nomenclature that is contrary to the rules of this Code".

In spite of these injunctions, however, there is no effective check on what is published in the name of taxonomy; there is nothing to prevent an author from making almost unlimited nomenclatural changes for such flimsy reasons as they

*) Die älteste legitime Emendierung liegt bei Allioni, Fl. Pedem. 1 : 58 (1785), in obs. — *Alectorolophus* Zinn, Catal. 228 (1757), ist totgeboren, da es nur eine Umtaufe von *Rhinanthus* L. ist.

"appear", "seem" "are considered" or "deemed" desirable or are made according to the author's "principle" or "policy". Are these to be accepted as sufficiently serious motives for name changes?

We all know to what lengths we have gone in the past to preserve the stability of nomenclature in current use by the acceptance of rules governing the conservation of illegitimate names above specific rank. Even in the realm of specific epithets many efforts have been made to preserve illegitimate combinations in current use. And yet changes in nomenclature go on faster than we can cope with them.

It may well be said that one is not forced to follow every monograph which appears in print and that each work should be judged on its merits. But half the workers may wish to accept a work and half to reject it. How, then, do we achieve nomenclatural stability.

With the publication of each new taxonomic study, the nomenclatural aspect of taxonomy becomes more and more time absorbing; more and more time has to be spent on the historical background and less and less time is available for the study of the plants themselves.

What are our objectives in taxonomy? What are our guiding principles? Are we agreed that our taxonomy seeks to express our views on phylogeny? Let us admit that our views on phylogenetic relationships are mostly based on guesswork, which we term judgement, good or bad. Is it not possible to express these views and at the same time achieve the other objective of a stable nomenclature? Are some of us perhaps losing sight of the fact that both nomenclature and taxonomy are the tools of the whole science of botany; that the ecologist, the physiologist, the horticulturist, most taxonomists and the man in the street are all impatient for a stable nomenclature of plants?

My main concern is for the stability of generic names. I have no solution to offer and merely as a basis for discussion, I propose that suggested generic name-changes should first appear in Taxon supported by relative evidence in order to give interested taxonomists the opportunity of making constructive criticisms within a period of twelve months, after which the evidence should be submitted to a Committee for decision, such as the Committee for Urgent Taxonomic Needs.

And secondly I propose that the time is ripe for the general acceptance of a written Code to be followed by all plant taxonomists.

Notice sur la façon de concevoir la Liste des Nomina Conservanda

par

B. P. G. Hochreutiner (Genève)

Le Secrétaire du comité spécial pour la nomenclature des Phanérogames, le prof. Pichi-Sermolli, nous a demandé de voter pour la conservation ou pour l'exclusion parmi les nomina conservanda des noms de genres dont il nous a envoyé une liste accompagnée de nombreux commentaires.

Trois cas se présentent:

1) Il s'agit d'un genre dont le nom est usuel partout et qui a la priorité. On votera donc *non* pour son adjonction aux nomina conservanda. C'est inutile.

2) Il s'agit d'un genre bien connu sous un nom usuel, mais on a découvert un synonyme inconnu de tout le monde dans un livre très ancien et qui a la priorité. On votera donc *oui* pour le nom usuel qui sera incorporé à la liste des nomina conservanda.

3) Mais il est des cas où la priorité est contestable; elle dépend de l'opinion

des botanistes qui, les uns, considéreront comme valable la publication dans un volume que d'autres ne considéreront pas comme valable. Il y aura donc divergence et hésitation, pour savoir si, oui ou non, le nom doit figurer dans la liste des nomina conservanda.

Or, il s'agira peut-être d'un nom de genre connu de tous, familier partout et que tous les botanistes souhaitent utiliser dans leurs travaux de préférence à tous les autres qui ne sont pas usuels.

On peut donc diverger d'opinion sur la priorité et être unanimes sur la nécessité de conserver un nom.

Que faire? Il nous semble que, dans ce cas, le plus sage est d'inclure le nom en question dans la liste des nomina conservanda, en donnant à cette liste sa véritable signification: Nomina *utique* conservanda. C'est-à-dire noms à conserver en tous cas.

On inscrira donc ces noms dont la priorité n'est pas absolument certaine dans cette liste des nomina conservanda, même si certains botanistes trouvaient cela inutile, étant donné qu'ils estiment, à tort ou à raison, que le nom en question a la priorité (fût-elle même douteuse).

Je propose donc que la liste des *nomina utique conservanda* soit aussi étendue que possible.

Je souhaite même que, dans un temps rapproché, on publie une liste de tous les noms de genre valables en botanique, qu'ils soient dans la liste actuelle des nomina conservanda ou pas, et qu'ils soient au bénéfice de la priorité ou pas.

Cette liste serait extrêmement utile à tous les botanistes et serait bien plus pratique si tous les noms de Phanérogames étaient rangés par ordre alphabétique (non par familles). Les Cryptogames formeraient un volume à part naturellement.

Il faudrait prévoir aussi, qu'à côté de chaque genre, figurât (au moins en abrégé) le nom de la famille.

Un tel recueil serait si indispensable aux systématiciens, qu'on trouverait sa justification financière grâce aux achats extrêmement nombreux des intéressés.

PDB IN PLASTIC ENVELOPES FOR PEST CONTROL IN THE SMALL HERBARIUM

by

Hamilton P. Traub (Arcadia, California)

Present methods for pest control in the large herbarium are apparently adequate (Lawrence, 1951), and therefore the present report is concerned with the pest control problems in the small herbarium, and the care of specimens that are received on loan, particularly irreplaceable specimens.

There is need for a very simple and inexpensive procedure in cases where the standard herbarium pest control facilities are not available. This includes (1) the individual worker who has a small specialized herbarium needed in connection with his research project, and who in addition receives specimens on loan, although most herbariums no longer lend specimens to individuals, and (2) the caretaker of a small specialized herbarium containing less than 500 specimens. Such a simple storage method is especially necessary now when not only taxonomists but also plant scientists in general, are urged for the sake of exactness to preserve representative specimens of the kind of plants used in their experiments, including species, species subdivisions, and cultivated forms. Such a method should combine in one simple inexpensive operation, — (a) the initial killing of pests, if present, and (b) the prevention of infestation or re-infestation indefinitely. With progress in the plastics industry such a method now appears to be feasible.

Attempts in the past to utilize the available transparent plastic films for protecting herbarium specimens failed, as far as the writer could ascertain from his own experience and that reported to him orally by others, because the durability of the films used was limited, and not sufficient attention was given to the shrinkage factor. The envelopes made of the plastics available earlier were subject to breakage due to embrittling with ageing, and the shrinkage was such that after six months or a year, the envelopes were tightly wrapped around the herbarium sheets, usually resulting in the stretching and breaking of the film. The workers at one herbarium to the writer's knowledge, made a considerable outlay to place all of the specimens under their care in such envelopes, and with a total loss of the envelopes over a number of years, not to mention the loss of working time and a feeling of frustration. In future attempts to solve this problem, there should be reasonable assurance, as shown by the properties of the film, that such losses will not be encountered. The envelopes or pouches used should be characterized by (1) durability, so that they will keep indefinitely, (2) transparency, or at least translucency, (3) ease of sealing, (4) low gas transmission rate so that the pesticidal vapor will be retained sufficiently long to kill any pests present, and (5) low cost. Saran film envelopes or pouches (200 gauge # 517), catalogue of properties to be detailed later, used in connection with such a pesticide as p-dichlorobenzene (hereinafter abbreviated as PDB), should give assurances that the basic requirements for the solution of the problem are adequately met, at least for the small herbarium, and for the protection of irreplaceable specimens on loan.

MATERIALS AND METHODS

Saran properties. The properties of 200 gauge Saran film # 517 are markedly different from those of films previously obtainable. As originally developed, the plastic, Saran (Dow Chemical Co., 1951) was used for various laboratory and industrial purposes, including tubing as a substitute for rubber or glass tubing. The catalogue of properties (Dow Chemical Co., 1951) includes (1) a high degree of transparency, (2) a marked tendency to retension of position when pressed into place, thus permitting easy sealing, (3) it is an excellent barrier to many gases, (4) the tear strength is fair, but the film is exceedingly tough, (5) it resists transmission of water vapor, (6) it is practically impermeable to water, (7) it is exceptionally resistent to the deteriorating effect of most acids, alkalies, essential oils and solvents, (8) it does not embrittle or materially change in physical properties upon exposure to sunlight, (9) it exhibits some shrinkage when exposed to higher than normal temperature, and thus allowance has to be made for this factor, or the plastic may be pre-shrunk for applications requiring it, and (10) it will not support combustion.

Saran pouches. The Saran pouches or envelopes used in these experiments were made according to the specification given by the writer, and were furnished by the Dow Chemical Company, Midland, Michigan. These were manufactured by first making Saran film tubing of the required diameter, then flattening, cutting to the required length, and electronically sealing one end so as to make a pouch. Due allowances were made for future normal shrinkage. The pouches were 13-14 inches wide and 23-24 inches long. Even at maximum shrinkage, these dimensions would insure that the pouch would hold the standard herbarium genus cover (12 × 16⅝ inches), in which the standard herbarium sheet (11½ × 16½ inches) with attached specimen was placed. In addition, the generous length provides a substantial flap to be folded over for sealing.

The estimated cost of the pouches used in the present experiments is less than 5 cents per unit, but this could possibly be lowered under mass production procedures.

Cellulose tissue and adhesive tape. Cellulose tissue, such as Kleenex, Scotties, and

so on, may be used for packaging the pesticidal compounds. Any adhesive tape that does not harden is suitable for sealing the pouches because it should be easily removable when used to seal the open end of the pouch.

Detection of herbarium pests. The literature on insects and related pests that infest herbarium specimens is not extensive. Bridwell (1932) reported on the collection of insects on herbarium specimens, and other workers (Merrill, 1948, Lawrence, 1951, and others) have reported on these pests incidentally in presenting methods for their control. The present report is concerned with the practical problem of control and lack of time prevented a detailed study of the pests. The presence or absence of such pests on the experimental specimens was observed mostly indirectly by noting partial destruction of the specimens, if any, or absence of such destruction.

PDB in herbarium practice. Before considering the experimental work, it is necessary to review briefly the use of PDB in herbarium practice and its relative effectiveness as a pesticide.

In connection with an evaluation of the relative efficiency of various poisons in relation to herbarium pests, Passerini and Pampini (1927) reviewed the literature on the subject, beginning with Stackhouse (1800). It will not be necessary to go over this ground again. These authors summarized the work with pesticides used by 53 museums and botanical institutes as of 1927. They did not mention however that Martin (1925) apparently was among the first to call attention to PDB as an herbarium pesticide. Their summary reveals that PDB for the control of herbarium pests was used in the U.S. National Herbarium ,Washington, D.C., before 1927. Gates (1935) and Shope (1936) have emphasized the importance of PDB in the control of herbarium pests. Apparently in response to these and other similar reports, the relatively costly procedures of periodic fumigation with such gases as hydrogen cyanide, carbon disulphide and methyl bromide, or the periodic application of heat (O'Neill, 1938), to control herbarium pests have to some extent been supplemented in the United States by the use of PDB on the top shelves of tightly closed herbarium cases to obtain gravity distribution of the heavier than air PDB vapor. More recently, Merrill (1948) has described methods for controlling herbarium pests, but apparently he considers the use of PDB in this program as a repellent. The herbarium specimens are fumigated by the usual method and are stored in tightly closed metal cabinets or temporary cartons (Merrill, 1926)). A mixture of 2/3 naphthalene flakes and 1/3 PDB crystals in muslin bags is placed in the upper pigeon-hole in each metal case; and a paper flap filled with PDB-naphthalene mixture is placed on the bottom near the back of each carton used for temporary storage. New additions, and specimens that might have been re-infested while out of the case, are fumigated before distribution into the herbarium.

So far there are no reports of the appearance of PDB resistent races of herbarium pests in cases where it is used, but the possibility does exist in cases where it is used exclusively.

Apparently no exact experiments for the control of herbarium pests with PDB have been reported, but data are on record for the control of clothes moths with PDB as a fumigant in enclosed spaces (Burgess, 1935; Molnar, 1947; Brown, 1951). PDB crystals in an enclosed space are effective at a dosage of 1 lb. per 100 cu. ft. (1 gram per 0.22 cu. ft.), which is five times as effective as naphthalene flakes.

The pharmacology of PDB poisoning for insects, and the toxic hazards to man have been reviewed by Brown (1951). Like other chlorinated hydrocarbons, PDB is reported to damage the liver. Human beings were found to tolerate up to 20 grams (equivalent to 300 mg./Kg.) by oral administration (Shepard, 1939). There appears to be a toxic hazard in industrial plants where workers are exposed to PDB vapor for long periods (Brown, 1951). This may mean that in the herbarium where PDB

is used as a repellent and vapor is always present in the atmosphere of the working quarters, the compound may become a health hazard to the worker.

Procedure. The properly dried herbarium specimen, mounted on the standard herbarium sheet (11½ × 16½ inches) is placed in the standard genus cover (12 × 16⅝ inches). More than one specimen may be placed in the same genus cover. The specimen or specimens between the genus cover is then placed in the Saran pouch (13-14 × 23-24 inches). About 0.5 to 1 gram of PDB crystals, or the required amount of another suitable volatilizing pesticidal compound, wrapped in cellulose tissue, is placed between the herbarium sheet and the upper fold of the genus cover. Any excessive air in the pouch is forced out by gently stroking the outside of the pouch toward the open end. The open flap end is then folded over backwards as far as it will go. The open edge may then be sealed with transparent adhesive tape but this is not necessary if the open flap end is relatively long. Under the experimental conditions the flap was sufficiently long so that this sealing was not required. The closed pouches were then stacked one on top of the other on the laboratory table and a light weight was placed on the top.

EXPERIMENTAL RESULTS

Two hundred specimens packaged in Saran film pouches as described were included in the experiment. Of these, 100 were specimens recently received from collectors in South America, some of which were pest infested; 50 specimens were known to be pest infested, and 50 were recently prepared specimens by heat drying between moisture-permeable plastic films (Traub, 1950; 1951), and were known to be free from infestation due to the heat treatment.

The specimens were examined after one week, when it was found that in the case of the 100 South American specimens, and the 50 specimens known to be infested, there was no evidence of further tissue destruction. The remaining 50 specimens, originally un-infested, also showed no evidence of tissue destruction. Thereafter, inspections were made every month over a two year period but no evidence of tissue destruction was ever observed.

In a similar smaller experiment including 25 specimens, the pesticide used was thymol crystals. The results were similar to those reported for PDB. Since thymol is about 10 times as expensive as PDB, it is apparent that it is more economical to use the latter.

DISCUSSION

It should be noted that the gas transmission rate of Saran film (200 gauge # 517) is very low, and thus the pesticidal vapor has a relatively long time to act and thus to destroy any pests present. When the pesticidal vapor does practically disappear after a year or more, the specimens are free from pests and cannot be re-infested unless they are taken out and exposed to new pests. Since there is no object in retaining the pesticidal vapors after they have passed out of the Saran pouches, the room in which the specimens are housed can be effectively ventilated so that PDB vapor, for instance in harmful concentration to humans, need never be built up.

Although the pouches are transparent, there is the disadvantage that the specimens have to be removed from the pouches for inspection because the herbarium sheets have to be placed between genus covers so as to maintain them in a flat condition. However, a number of specimens may be placed between each genus cover so that related plants may be easily kept together for study.

When the specimens are replaced in the pouches after removal for study, it is an easy matter to place the small needed quantity of PDB in the pouch before closing, if there is any possibility that the specimens may have become re-infested.

As previously indicated, the method is primilarily for use of those who receive specimens on loan and those who are maintaining small herbariums in connection with special projects. When such projects are completed, the specimens may then be placed in the institutional herbarium where they may be stored in accordance with the standard procedure (Lawrence, 1951).

The specimens in the pouches may be sent on loan with the assurance that they will not become insect or mite infested if the recipient is properly instructed in the simple method of preventing re-infestation by adding the needed quantity of PDB in the pouch when specimens are replaced after removal for study. In this way the herbarium curator is insured against irreparable losses such as have been reported by Merrill (1948).

SUMMARY

Directions are given for storing herbarium specimens with the needed quantity of p-dichlorobenzene for the destruction of insect, mite and related pests in sealed Saran film pouches or envelopes. These pouches are durable, transparent, easy to seal, and possess a low gas transmission rate so that the pesticidal vapors will be retained sufficiently long to kill any pests present.

The method is recommended for the worker with a small herbarium, and for those who receive herbarium specimens on loan, and who do not have access to the standard facilities for herbarium pest control.

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SCIENTIFIC ROMANIZATION OF JAPANESE

by

Jiří Paclt (Bratislava)

Acknowledgement

I wish I could thank all institutions and individuals in Japan that have been of assistance to me in preparing the present report. I mention especially: Mr Toshio Hara, Chief, Japanese Language Section, Research and Publications Bureau of the Ministry of Education, Tokyo; Mr Torao Uyeda, Kenkyusha Ltd, Tokyo; and Mr Okano-Atunobu of the Rômazi Kyôikukwai, Tokyo.

Introduction

Three styles of "Romanized Japanese" exist in principle: the "Government style" (G.), the "Standard (Hepburn) style" (S.), and the "Japanese style" (J.). The only paper dealing (incompletely) with the history of these styles was published by *De Francis* (*J.*) under the title "Japanese language reform; politics and phonetics" (Far Eastern Survey 16 : 217-220. 1947). Since this article is practically inaccessible to the majority of those interested in alphabetizing the Japanese script, and because it is by no means up to date, it might be useful to give a brief note on the history of the development of the romanization movement in Japan and abroad.

Historical

The first period of general interest in the Rōmaji (= Romanized Japanese) begins in Japan with the year 1885 when a special society (Rōmajikai) was founded in Tokyo. The spelling system used had, however, a predecessor in Europe, viz. the famous Hepburn system (*J. C. Hepburn*, Japanese-English dictionary, 2 ed., Shanghai 1872). After some amendment due to proposals by the Rōmajikai, the system appears, in an improved form, also in Europe (*Chamberlain*, A handbook of colloquial Japanese, London 1888). Up till 1900 the movement was almost neglected in Japan, but in that year, the Department of Education appointed a committee to discuss the problem. In 1905, the journal "Rōmaji" was started, the organ of the Rōmaji Hiromekai (Society for the propagation of Romanized Japanese). In 1909, another society was founded in Tokyo (Nippon-no-Rômazi-Sya, or Society for the publication of Romanized Japanese) issuing since 1911 an organ named "Rômazi Sekai" which devised the system now being known as the "Japanese style". The first texts in this style appeared already in 1873 and 1885. Later on, this society cooperated with the Nippon Rômazikwai (Society for the propagation of Writings in Roman Characters, founded 1921). The Rōmaji Hiromekai (see above) issued between 1928 and 1933 two pamphlets of considerable importance for the alphabetization of the Japanese ("The Japanese language and the Roman alphabet", Tokyo 1928; "The question of writing the Japanese language with Roman letters", Tokyo 1933). More recently (1937), the formula of Romanizing Japanese was promulgated by means of cabinet instructions in a Japanese government decree ("Government style", or Kokutei Rōmazi, i.e. Official Romanization) and this system has been followed e.g. by several scholars in America and by the editor of Chemical Abstracts (see Directions for Assistant Editors and Abstractors of Chemical Abstr., 1939, p. 11). Since then, nothing else has been done by the Japanese government (*Hara*, in a letter of Dec. 1951). At present, the methods of romanization are being studied by the Japanese Language Council, an agency established by the Ministry of Education to investigate and consider Japanese language policies.

Recommendation

After careful examination during recent years I have come to the conclusion that the "Standard style" is the most precise and the internationally valid system of romanization of Japanese for all scientific purposes (documentation, nomenclature). The "Standard style" (i.e. the amended Hepburn system) is used also (at least at the moment) by the Mombusho (Ministry of Education) itself, as well as by almost all recent dictionaries by Japanese authors printed in Japan, America and the U.K. Thus, unless indicated otherwise in the original publication (using Roman letters), we should write e.g. *Takahashi* and *Yoshii* (Japanese surnames) and not *Takahasi* and *Yosii* as prescribed by the "Japanese style".

Basic works dealing with the standard style

Boodberg, P. A.: UCJ — An orthographic system of notation and transcription for Sino-Japanese. Univ. Calif. Publ. East Asiat. Philol. 1 (2) : 17-102. 1947.

Kenkyusha's New Japanese-English dictionary. *Takenobu Yoshitaro* (general editor). London 1942.

Sanseido's New concise Japanese-English and English-Japanese dictionary. *R. Ishikawa* (general editor). Facsimile ed.: Minneapolis, Minn. 1932-1938.

SCIENTIFIC ROMANIZATION OF CHINESE

by

Jiří Paclt (Bratislava)

In the sinological (i.e. scientific) field two systems of romanization of Chinese may be taken into serious consideration: the Wade-Giles alphabetization, and the so-called "National Language Romanization", or G.R. (= Gwoyeu Romatzyh). I have never promulgated the use of any other systems for the use of international documentation in biological sciences (see Proc. Int. Congr. Entomol. 8, Stockholm 1948 : 995. 1950; Candollea 13 : 279. 1952).

Some *basic works* dealing with the *Wade-Giles alphabetization* are:

Giles, H. A.: A Chinese-English Dictionary. London 1892.

Wade, T. (Sir): Yü Yen Tzu Erh Chi, a progressive course designed to assist the student of colloquial Chinese. London 1867. 3rd ed. 1903.

Some *basic works* dealing with the *G. R.* are:

Simon, W.: The new official Chinese Latin script Gwoyeu Romatzyh. Tables, rules, illustrative examples. London 1942.

Simon, W.: A beginners' Chinese-English dictionary of the National Language (Gwoyeu). London 1947.

Simon, W. & *Lu, C. H.*: Chinese sentence series. Part 1. London (1942) 1945. (With complete bibliography.)

The history of the alphabetization of the Chinese script is treated by *Karlgren* and *De Francis* in three amazing studies, the contents of which can alas not be repeated here:

De Francis, J.: The alphabetization of Chinese. J. Amer. Orient. Soc. 63 : 225-240. 1943.

De Francis, J.: Nationalism and language reform in China. Princeton, N.J., 1950.

Karlgren, B.: The romanization of Chinese. London 1928.

The use of an international system of romanization of Chinese will primarily concern the onomatological and bibliographical work.

Onomatological work

In botany and other biological sciences we recommend to analyse the Chinese vernacular names in accordance with the G.R. system (see Candollea 13 : 279. 1952). The abundance of diacritics in the Wade-Giles system, as well as the confusing homophony or homography of quite a number of sounds, are the principal reasons why we refrain from using the latter system.

Bibliographical work

We are occasionally obliged to refer to scientific papers written in Chinese to which no summary or other indication in Roman characters is added. In such cases it is necessary to decipher the author's name, the title of the article and sometimes even the title of the periodical. One should then follow the principles of an international system of alphabetization. For the sake of preciseness the G.R. system should be preferred (see under "Onomatological work").

Nomenclature

In nomenclature (when naming new taxa) one will follow — as a rule — the practice of conventional romanization; personal and geographical names will be retained in the form found in the publication or on the map. It would lead to a considerable and unnecessary disturbance, if names like the surname *Chou* were to be spelt as *Jou*, in accordance with the G.R. Nobody dedicating a species to *Chou* will hesitate to name it *choui*. The extreme phonetic diversity of the Chinese tongues would not allow to use the G.R. system for the naming of new taxa. The choice should be optional.

Notes on Herbaria

THE MUSEO CIVICO OF VICENZA

All herbaria preserved in Vicenza were completely destroyed during the war. Dr Pichi-Sermolli, from Florence, submits the following information on the former contents:

1) Herbarium Marzari-Pencati (Province of Vicenza, Pyrenees, Apennines, France).

2) Herbarium Beggiato (about 14.000 spec.).

3) Herbarium Giovanni Arduino (Veneto and plants cultivated in the Botanical Garden of Padova).

4) Herbaria Zangiacomi and Speranzi.

5) Herbarium Turra (Province of Vicenza).

6) Herbaria Canale, Tiene, and Cavazzola.

THE DULUTH HERBARIUM

University of Minnesota, Duluth Branch
Duluth, Minnesota

The herbarium at the Duluth Branch is relatively small, of local plants mostly from St Louis County and adjacent areas in northeastern Minnesota. It is the result of my own efforts and desire to study the vegetation of the surroundings, first around Duluth and then farther on to the Canadian boundary. Since 1935, over 17.000 plant collections have been made, many in duplicates which have been used as exchange material with other institutions. These, with the area collections, add up to 25.000 sheets of mounted plants.

During my hours of leisure, from the earliest spring flowers to the last ones in the

autumn, collection has been carried on for more than a decade and a half. Some of the 7.000 square miles of water and land in St Louis County still remain unexplored. To date, 1.200 different species, including forms and varieties, have been found growing in the county. Several of these are new records for the state flora and a few new to science. From time to time, the new or otherwise interesting findings have been published in Rhodora.

The making of the herbarium at Duluth has been altogether a personal enterprise. In recognition of this study, the Graduate School of the University of Minnesota in the summer of 1951 and the Greater University Fund in 1952 awarded a research grant. The herbarium is the record of the ferns and flowering plants of St Louis County but it has a wider application in the flora of the continental interior. It is the basis of classification and distribution of plants for the writing of the flora of the county, now underway.

OLGA LAKELA.

L'HERBARIUM DE YANGAMBI (YBI)

Congo belge

La Division de Botanique de l'Institut National pour l'Etude Agronomique du Congo Belge (INEAC) a comme objectif principal l'étude de la FLORE et de la VEGETATION du Congo belge et du Ruanda-Urundi.

Depuis bientôt 20 ans, elle poursuit systématiquement l'inventaire floristique du territoire congolais.

Les premières récoltes entreposées remontent à 1935, date de la fondation de la Division de Botanique par feu le Professeur J. Louis dont la collection d'environ 17.000 spécimens, comprend principalement des matériaux originaires de la Cuvette forestière équatoriale; cette importante collection compte de nombreux types nominaux.

L'accroissement du personnel scientifique de l'Institut, et plus particulièrement la mise sur pied de missions pédo-botaniques, a permis d'étendre les prospections à d'autres territoires phyto-géographiques de la Colonie. Le personnel des stations de l'Institut et des récolteurs bénévoles (Agents du Gouvernement, Missionnaires, etc.) contribuent également à l'enrichissement de nos collections qui comprennent actuellement quelque 70.000 spécimens.

L'Herbarium du Centre de Recherches de Yangambi est destiné à devenir l'Herbier National du Congo.

En vue d'accroître sa valeur, l'INEAC a établi un service d'échanges avec les Institutions étrangères intéressées à l'étude de la Flore de l'Afrique tropicale. De nombreux doubles sont actuellement disponibles, toute demande de matériaux est à adresser au Chef de la Division de Botanique à Yangambi.

Outre les botanistes et forestiers travaillant sur le terrain, des taxinomistes métropolitains oeuvrent, en collaboration avec le Jardin Botanique de l'Etat à Bruxelles, à l'élaboration d'une FLORE DU CONGO BELGE ET DU RUANDA-URUNDI. Quatre volumes de cet important ouvrage sont actuellement parus.

R. GERMAIN,

Chef de la Division de Botanique.

News and Notes

FARLOW HERBARIUM

"Dr I. McKenzie Lamb, since 1950 Curator of Cryptogams at the National Herbarium of the National Museum of Canada at Ottawa, has accepted the position of Curator of the Farlow Library and Herbarium at Harvard University. Since the death of its former Director, Dr W. Lawrence White, on July 30th, 1952, as a result of an automobile accident, the Farlow Herbarium and Library continued its activities under the temporary guidance of William H. Weston as Acting Director and during this period it underwent some reconstruction with the reorganization of certain of its facilities in order that it might conform to the plans of the new botany building now being constructed in connection with it. Dr Lamb, who assumed his duties as Curator on September 23rd, will devote his notable versatility and wide experience to fulfilling the important and well established functions of this Curatorship by carrying on the activities of this long-standing institution and by continuing his own research on lichens and other cryptogams as well as by maintaining close working association with the Department of Biology with which this in-

stitution is connected and by participating in coordinating the activities of the Farlow Library and Herbarium with those of the other libraries and herbaria united in this new center."

GEORGE L. FISHER (1867-1953)

George L. Fisher was born at St. Thomas, Ontario, Canada, 8 January 1867, and died at his home in Houston, Texas, 21 September 1953. A teacher of instrumental music by profession, Mr. Fisher maintained an enthusiastic interest in botany from his early years, though never formally trained in the science. He collected herbarium specimens in Europe while a music student in the 1890's, in Germany and England. After settling in Houston in 1912, he made numerous trips to Mexico, as well as collecting widely in the United States. From quarters in his garage, he operated the American Botanical Exchange, selling and exchanging plants with individuals and institutions throughout the world, but especially in Europe and in North and South America. He did not maintain a permanent herbarium of his own: any specimens he acquired might be sold or re-exchanged at any time. Occasional price lists were printed from type which he set up himself. In accordance with his own request, specimens and reprints on hand at the time of his death were presented to Southern Methodist University.

The specimens total in excess of 10,000, mostly phanerogams, and are in addition to some 7,500 which the University acquired earlier by purchase. They have been moved to Dallas, but are as yet unsorted and unmounted. There are no plans to continue the American Botanical Exchange.

Lloyd H. Shinners.

NOMENCLATURE AND TAXONOMY

Nearly all the papers that recently have been published in Taxon seem to focus the light of their very competent judgement on the absurdity of the present system of nomenclature. Their authors mostly express opinions that are agreed on at least by the major part of the Staff of a Museum, of a group of teachers or of the members of a local scientific Society. I myself have to act on my own responsibility, and as such I venture to express my adhesion to their criticism, but this does not mean that I accept the remedies that are proposed by them.

In the course and under the curse of a solitary field practice in systematic botany lasting for a period of twenty-five years, I have been driven to the conclusion that nomenclature has to find its proper laws from outside its own domain, and that the only possible solution of the nomenclatural problems lies in a logical taxonomy.

Indeed, it should be quite clear that no remedy against the confusing diversity of epithets and other names can be found so long as the delimitation and the number of the taxa are not properly fixed. All the west-african representatives of *Ambulia* (Lam., Engl. u. Prantl = *Limnophila* R. Br., Bth. et Hook. f., F.T.A., F.W.T.A.) are e.g. to be reduced to two species, and the latter are to be transferred to *Stemodia* L. One of these species comprises, in my opinion, *L. sessiliflora* Bl., *S. tenera* (Skan) K. Sch. and *S. ceratophylloides* (Skan) K. Sch. Under the correct generic name a combination with the prior epithet does not exist. Must I avoid the introduction of a "new combination", and should I chose, for reasons of expediency, *S. ceratophylloides*, which is a very suitable name, instead of *S. sessiliflora* (Bl.) G. Rob.? Certainly not; but apparently most of my colleagues would.

Now, where lies, actually, the conflicting point? Evidently in the profusion of epithets and generic names. Everyone seems to agree on this.

Where is the remedy to be found? Apparently in a systematic application of taxa symbols (cf. Taxon 2 : 9) in their hierarchic sequence.

Acting by myself I stick since half a dozen years to this practice, and I find it quite convenient. My scheme (l.c. p. 9 and 10) may be criticized in its details or in some of its principles . . . but I am convinced that this is the only way in which the numerous and despairingly confusing problems of our present nomenclature can be solved.

Guy Roberty.

NEW YORK BOTANICAL GARDEN

The New York Botanical Garden has announced plans for the latest in its series of explorations in Venezuela and the Guianas. This year's party includes Dr Bassett Maguire, who has led numerous expeditions in this area, Dr John J. Wurdack, Assistant Curator, and Mr George Bunting, Technical Assistant, all members of the Garden staff. The principal objective of this trip is the study of the vegetation of Cerro Jimei (spelled Imeri on maps) which lies on the

boundary between Venezuela and Brazil. The expedition with its equipment and supplies will follow the Orinoco River through most of its length to the Casiquiari River, up the Pacimoni and Yatua Rivers to the Cerro. Following the completion of the exploration in this area, the group will move back downriver to continue the study begun on earlier trips of the vegetation on the iron-rich mountains southeast of Ciudad Bolivar. This phase of the work will be carried on with the cooperation and at the request of the Orinoco Mining Company. The expedition is to be financed by the National Science Foundation, an agency of the American government which supports scientific investigations by means of grants and fellowships.

The program of exploration in Tropical America, begun in 1925, re-intensified in 1944, and continuing beyond the present, approaches its culmination in this year's expedition. Some 15,000 collections (or about 75,000 specimens) have been taken since 1944 and while there are many areas still to be studied in the southern half of Venezuela, the principal areas have been well sampled. It is believed that sufficient materials have been accumulated to begin the floristic studies which have long been the goal of this institution. With the full cooperation of the government of Venezuela and the assistance of specialists in Europe and America the flora of the Guyana Highland and Venezuela is being prepared.

Although these expeditions have collected material of all plant groups, including Cryptogams, particular attention is always given to those families which are being critically studied by specialists at the New York Botanical Garden.

These include: Guttiferae, Rosaceae-Chrysobalanoideae, Rapateaceae, Leguminosae, Melastomaceae, Aquifoliaceae, Polygalaceae, Rutaceae-Cuspariinae, Lauraceae, Myrtaceae, Apocynaceae, and Sapotaceae. It is perhaps redundant to suggest that material of these families from this area will be gratefully received on exchange from any botanical institution.

ERRATA

A small number of unimportant misprints appeared in Dr Paclt's article on Transliteration of Cyrillic (Taxon 2: 159-166), except one which may disturb the sense of the sentence on page 161, right column, line 17 to 21. Please substitute "... posui *c* cum *h* together, I called that letter *kh*, and (etc.)" for "posui *c* cum *h* et vocavi illam litteram *che*, et nolui novam imponere propter gravitatem addiscendi et libros variandi" (Having placed *c* and *h* together, I called that letter *kh*, and (etc.)").

TYPUS ODER STANDARD?

Die Äusserung F. R. Fosbergs in Taxon III, 3: "The confusion that still exists in the minds of some, apparently even including Croizat, between nomenclatural and biological types (oder auch anderen Begriffen von Typus - W.R.) is an unfortunate result of a poor choice of the word "Type" for the nomenclatural use". Es sind sogar viele Botaniker und selbst Systematiker, die diesen Begriff nicht als rein nomenklatorischen verstehen, so dass man im Allgemeinen schon stets den Begriff "nomenklatorischer Typus" gebraucht.

Trotzdem würde ich es für ratsam halten, doch noch eine Änderung des Wortes in Erwägung zu ziehen. Für den Begriff des Typusexemplares hat man vielfach das Wort "Original" verwendet, das sich aber schlecht für den Begriff des nomenklatorischen Typus höherer Kategorien verwenden läßt. Besser geeignet wäre das Wort Basis (Mansfeld 1949) oder das Wort Standard, wie ich es 1950 vorgeschlagen habe, doch konnte ich infolge meines verspäteten Eintreffens in Stockholm diese Frage nicht mehr in die Debatte werfen.

Ich würde empfehlen im Art. 18 des Code den Begriff "nomenklatorischer Typus" usw. stets durch "nomenklatorischer Standard" zu ersetzen, da es sich in allen diesen Fällen wirklich um einen Standard handelt, nach dem sich die Begriffe (bezw. Namen) zu richten haben.

W. Rothmaler

PERSONALIA

Dr Claude E. Smith, Jr, has been appointed Assistant Curator of the Department of Botany of the Academy of Natural Sciences of Philadelphia, in charge of the Herbarium of that Institution.

Dr Reed C. Rollins, Director of the Gray Herbarium of Harvard University, has recently been further honored with appointment to the chair of Asa Gray Professor of Systematic Botany.

Dr Richard A. Howard, Professor and Head of the Botany Department of the University of Connecticut, has been appointed Arnold Professor of Botany and Professor of Dendrology by Harvard University and also Director of the Arnold Arboretum. He

assumed his new duties February 1, 1954.

Dr W. H. Camp, for some years Curator of the Department of Experimental Botany and Horticulture of the Academy of Natural Sciences of Philadelphia, has resigned that position and will become Professor and Head of the Botany Department of the University of Connecticut, Storrs. The change became effective February 1, 1954.

NOMENCLATURE COMMITTEES

On 15 January 1954 Dr E. Quisumbing sent in his resignation from the Special Committee for Phanerogams and Pteridophytes.

NOTICES OF BOOKS

Plant Genera

Plant Genera, A symposium on the nature and definition of plant genera, held at Cornell University with contributions by G. H. M. Lawrence, I. W. Bailey, A. J. Eames, R. C. Rollins & M. S. Cave. With an introduction on generic synopses by Th. Just. *Chronica Botanica* 14(3). 1953; 72 p., historical and modern illustrations. *Published by:* The Chronica Botanica Co., Waltham, Mass. & N.V. de Erven Noordhoff, Groningen. (*Price:* $ 2.—).

Pioneer Plant Geography

Pioneer Plant Geography by W. B. Turrill (Kew). — Excerpts from Sir Joseph Dalton Hooker's manifold writings on plant geography to which critical appreciations, based on more recent investigations, have been added. — *Lotsya* 4. 1953; 267 p., 21 plates. *Published by:* N.V. Martinus Nijhoff, The Hague (*Price:* $ 4.50).

New Concepts in Flowering Plant Taxonomy

New Concepts in Flowering Plant Taxonomy by J. Heslop-Harrison. *Published* (Nov. 1953) *by:* Messrs William Heinemann, 99 Great Russell Street, London W.C. 1 (*Price:* sh. 6/-).

Flora of Bedfordshire

Flora of Bedfordshire by John G. Dony, Ph. D., Keeper of Botany, Luton Museum; with a foreword by Sir Edward Salisbury, C. B. E., F.R.S., D. Sc., F.L.S., Director of the Royal Botanic Gardens, Kew.

No Flora of Bedfordshire has been published since Charles Abbot's *Flora Bedfordiensis* in 1798, itself one of the first county floras. Dr Dony's work will therefore be welcomed as filling a very real need, and is likely to remain the standard work of reference for many generations.

The introduction contains sections on the history of botany in Bedfordshire (with an index of botanists past and present), the physical, geological, climatic and soil factors governing plant distribution in the county, and an important analysis of the county flora based on intensive studies of 86 limited areas. A complete bibliography is added. In addition to the conventional information, the Flora proper also gives the stations of all the rarer species of flowering plants, mosses, liverworts, stoneworts, fungi, ferns and fern allies.

Size 8½ x 5½, 532 p., 25 plates, 22 text figures, 1 map. *Published by:* The Corporation of Luton Museum and Art Gallery, Luton, Bedfordshire (*Price:* £ 2 2 s., post free).

Opera Botanica

This new series of publications is a continuation of "Botaniska Notiser, Supplement" and is edited by the Botanical Society of Lund, Sweden in cooperation with the Institute for Systematic Botany of the University of Lund. The series consists of larger treatises and is issued at indefinite times. It will contain contributions on all aspects of botany, though for the greater part in the taxonomic and phytogeographical fields. About two or three papers will form a volume of c. 400 pages. *Price per volume:* Sw. Kr. 30.—; on direct application to the society: Sw. Kr. 20.—; Members of the Society: Kr. 15.—.

Vol. 1(1) Enumeratio Uredinearum Scandinavicarum, by N. Hylander, I. Jørstad & J. A. Nannfeldt (1953).

Vol. 1(2) Middle Triassic Charophyta of South Sweden by H. Horn Af Rantzien (in preparation).

Conjugatae

A new classification of Conjugatae with special reference to Desmids by Yoshikazu Okada, Kagoshima, Japan; Mem. Fac. Fisher. Kagoshima Univ. 3(1): 165-192. 1953.

Euastrum

Taxonomical studies on the genus Euastrum, with special references to the species of Japan and its surrounding areas by Yoshikazu Okada, Kagoshima, Japan; ibidem p. 193-244. 1953.

Office

The International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht — Netherlands.

TAXON

Vol. I nos 1—9, 1951—1952; Vol. II nos 1—8, 1953; Vol. III nos 1—x, 1954.

Backnumbers (Vol. I no. 3 excepted) are available for all members. Those who joined the I.A.P.T. on or after 1 Jan. 1954 can buy Vol. I (no. 3 excepted) against $ 2.— and Vol. II (complete) against $ 3.— per copy. Single numbers are free for all regular members.

N.B. Vol. II consists of 8 numbers.

Regnum Vegetabile

Vol. 1. *Seventh International Botanical Congress, Section Nomenclature;* report by J. Lanjouw, Rapporteur-Général; reprinted from the Proceedings of the Stockholm Congress, Uppsala 1953, distributed from Utrecht 1 March 1954. *Free* for all 1951-1953 members. Free copies are available for 1954 regular members (on request).

Vol. 2. *Index Herbariorum.*

Part I *The Herbaria of the world.* Second, revised, edition, 1 January 1954.
Institutional members and regular individual members: **free.**
Others: D. fl. 13.30.

Part II *Collectors.* First instalment (A-D), 1 March 1954.
Institutional members: **free.**
Regular Individual members: D. fl. 7.60 ($ 2.—; sh. 15/-).
Others: D. fl. 14.50.

Vol. 3. *International Code of Botanical Nomenclature.*

Cheap edition, 15½ x 24 cm, buckram, 1 December 1953.
Regular individual members: D. fl. 5.50 ($ 1.40, sh. 10/-).
Others: D. fl. 10.— (Not yet available for non-members residing in the U.S.A.).

Vol. 4. *Recueil Synoptique des Propositions concernant la nomenclature botanique, soumises au Huitième Congrès International de Botanique, Paris 1954;* March 1954.
Institutional and regular individual members: **free.**
Others: D.fl. 9.50.

REGIONAL TREASURERS

Austria: Dr K. H. Rechinger, Naturhistorisches Museum, Botanische Abteilung, Burgring 7, Wien.

Belgium: Prof. W. Robyns, Rijksplantentuin, 236 Koninklijke Straat, Brussel.

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Egypt: Mr Mohammed Drar, Fouad I Agricultural Museum, Dokki, Cairo.

France: M. H. Jacques-Felix, 45 bis Avenue de la Belle Gabrielle, Nogent-sur-Marne, Seine. C.C.P. Paris 2243-12.

Germany: Dr Walter Domke, Staatsinstitut für Allgemeine Botanik, Jungiusstrasse 6, Hamburg 36.

Great Britain and British Overseas Territories: Mr A. A. Bullock, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, England.

Italy: Prof. R. E. G. Pichi Sermolli, Herbarium Universitatis Florentinae, Istituto Botanico dell'Universitá, Via Lamarmora no. 4, Firenze.

Netherlands: The International Bureau for Plant Taxonomy and Nomenclature, Lange Nieuwstraat 106, Utrecht. Bankers: Messrs Vlaer & Kol, Utrecht, giro 7247.

Norway: Prof. K. Faegri, Universitet I Bergen, Botanisk Museum, Bergen.

Sweden: Mr Bo Peterson, Botaniska Museet, Lund. Postgiro 43.35.39.

U.S.A.: Dr R. C. Rollins, Gray Herbarium, Harvard University, 79 Garden Street, Cambridge 38, Mass.

"Taxon" is directed by: Prof. J. Lanjouw, Chief Editor, and Dr F. A. Stafleu, Assistant Editor. All correspondence should be sent to the International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht — Netherlands.
All members of I.A.P.T. receive "Taxon" free of charge. Copies of personal members are for private use only and should not be placed in official libraries.